THE

AMERICAN NATURALIST.

Vol. VII.—JANUARY, 1873.—No. 1.

NOTES ON THE RIGHT AND SPERM WHALES.

BY PROF. N. S. SHALER.

THE following notes on the habits of the right whale were taken down in a conversation with Captain John Pease of Edgartown, an old whaler, whose powers of observation as well as of accurate and clear statement I have rarely known equalled. As far as possible these statements have been collated with those of other experienced whalers.

All of the south latitude right whales are without calves up to July 1st; the females are found in the bays about this time. The calves all come at once, it being but two or three days between the bearing of the first and last calves. None are found with the herd up to the 1st of July and every female has her calf by the 3d or 4th of the month.

The right and humpback whales are very fond of their young, taking no care of themselves in their efforts to save it; the sperm whales, on the other hand, are quite without affection as far as can be determined by their behavior.

Sperm whales have leaders of the herd which they follow with a certain obstinacy; these leaders seem to give the alarm to the others. No such subordination can be observed among right whales. Sperm whales, as is well known, have the males very much larger than the females, while the reverse is the case among the right whales. This is interesting in connection with the fact that the male sperm whales struggle furiously together, while the

males of the right whales seem to have no conflicts with each other. Captain Pease had seen males struggling with each other and often found their bodies scarred with the imprints of the rival's teeth; the scars showing their origin very distinctly by their form — the distance apart of the wounds answering to the intervals of the teeth. The great superiority in the size of the males among the sperm whales is just what would be expected in a species where the males struggled in the combats of rivals. The gain in size under the influence of these conflicts of the males is generally limited in land animals within pretty narrow bounds. There are probably no land animals where the male is double the weight of the female, yet the male sperm whale would seem to excel the female by more than this proportion. This extreme development of the males occurs also among the Otaridæ as well as among many groups of fishes, so it would seem as if there was some reason why the influences tending to limit size were less active in the sea than on the land. The reason for the greater freedom to acquire size in the sea is undoubtedly to be found in the less weight of bodies in that element, the effect of which is shown as well in the structures of man as in the structures of nature; the ship exceeds all vehicles for land transportation for the same reason and in something like the same proportion that marine animals, when size is the advantage, exceed terrestrial forms.

The conflicts between the males of sperm whales lead to great damage to the lower jaw; the evidence goes to show that at least two per cent. are crooked more or less, and one in several hundred very badly bent by these struggles. There are two specimens in the small museum at Nantucket which are singularly contorted; one of them is bent laterally into one turn of a spiral. Captain Pease tells me that he found one that was bent sideways at right angles to the proper position and firmly fixed there, seeming to be a permanency in this singular place. In fighting, the males rush at each other with open jaws and strike in passing. The great speed and power of these massive creatures must lead to the most serious results from these collisions. Capt. Pease found a sperm whale nearly dead on the water with the lower jaw hanging by a single band of ligament a few inches through. The creature was being devoured by sharks and crustaceans, but the wrench which had crippled this whale must have come from one of his kind.

Captain Pease has several times seen the killer attack right and humpback whales; they strike for the tongue if possible. They often jump many feet from the water and fall upon him. Many individuals, fifty or more, join in this attack. They tear out large pieces from the blubber, food being evidently the object of their attack. Their great activity makes the whale helpless against them, though he will struggle furiously before overborne. They sometimes drag down the whale after it has been killed by the whalemen.

The Captain was quite sure that the chief article of food of the sperm whale is squid, as they vomit large quantities of them in their death agonies; he thinks that the whales take them by swimming with the mouth so wide open that the lower jaw stands at nearly right angles to the upper. Squid, he thinks, will grasp at the jaw as the whale passes among them and are cut in fragments by the sudden closure of the jaws. He says that the jaw is closed with prodigious force and suddenness so that when out of water the noise can be heard for two or three miles, and is even noticeable under water. He stoutly maintains that he has seen fragments of squid, where the whales had cut them in two, exposing the cavity of the body, which was as large over as the head of a forty gallon cask. In one case he saw the head of a squid which he believes to have been as large as a sugar hogshead.

The Captain is convinced that the right whale has a trace of hair within the skin. He says that when the skin is fresh, if it be scraped with a knife so as to remove the superficial parts, there will then be seen a trace of hair in the inner section. This point is worthy of attention from those naturalists who have opportunities for such work. It is evident that if the whale is the descendant of some land mammal form it would be likely to preserve a trace of the hairy covering. In this connection it is interesting to note that, in the museum at Nantucket, there is a tooth of a sperm whale with two fangs after the fashion of an ordinary mammalian canine. The specimen was taken many years ago, but with it is the statement that the other teeth of the whale were of the same fashion. This clearly looks like a reversion to some higher mammalian form of dentition.

Captain Pease thinks that right whales attain very nearly their adult size in three years, there being about three distinct sizes found at one time in the sea. He thinks, however, that they may continue to grow very slowly for some years longer, the ultimate

size depending a good deal upon the haunt of the whale; some regions having larger specimens than others. If the whales are descendants of our marine carnivora we should expect them to preserve something like the same growth rates, for this feature seems to be tolerably permanent in any group of related animals. The rate of growth, deducible from the observations of the practical students of the whale, coincides pretty closely with what we should be inclined to expect on the supposition that the cetacea were descended from some ancestor like the marine carnivora.

The great decline of the whale fishery in all countries seems likely to deprive us of the ill-used opportunities, which naturalists have long had, of making themselves acquainted with the habits of the greatest of the mammals. There are many questions which should be discussed and settled before the class of clear headed and observant whalemen has passed away; else we may remain for centuries without a competent knowledge of the ways of this, the greatest living monument of animal life.

OUR POISONOUS PLANTS.

BY W. W. BAILEY.

THE poisonous plants of our northern woods are not so numerous but that they may easily be learned. Of them certain members of the sumac family (*Anacardiaceæ*) have the most evil reputation. To this order belong the so-called dogwood (*Rhus venenata*), and the poison-ivy (*Rhus toxicodendron*). The dogwood must not be confounded with the beautiful *Cornus florida*, which unfortunately bears the same familiar name. This tree is perfectly innocent and is so highly ornamental that it would be a shame if through simple ignorance it should ever be cut down.

There are two varieties of *Rhus toxicodendron*, distinguished by slight differences in the leaves. When these are cut-lobed, the plant is *R. toxicodendron* (Fig. 1); when entire, it bears the name of *R. radicans*. Some authors have considered them distinct species, but there is no doubt they are merely modifications of one. Both forms are occasionally mistaken for the Virginian creeper (*Ampelopsis quinquefolia*, Fig. 2) to which the climbing forms bear